



Corpus-Driven API Refactoring

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Introduction

- Program rewrite or refactoring improves software maintainability.
- Application programming interface (API) plays key role in everyday programming.
- Automatically refactor an API call sequence

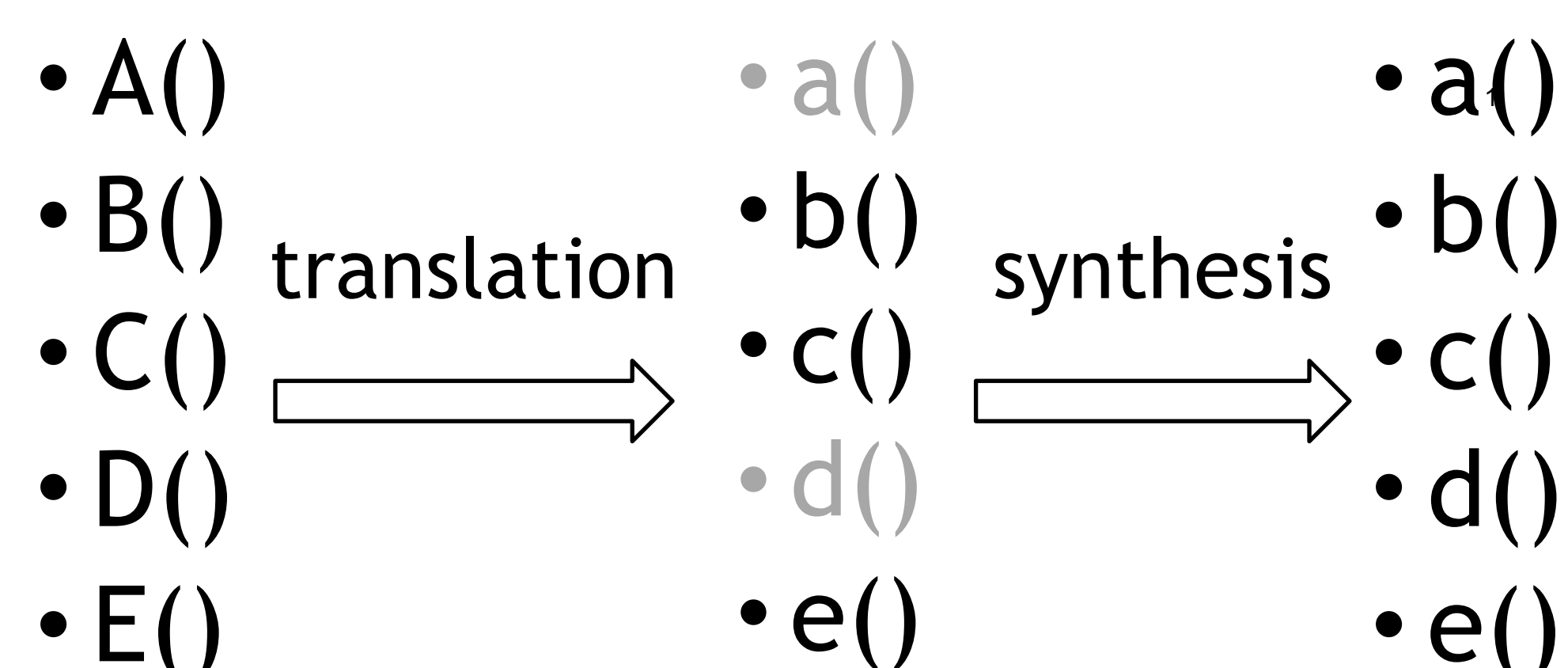
```
HtmlCleaner cleaner = new HtmlCleaner();
TagNode node = cleaner.clean(content);
TagNode[] links = node.getElementsHavingAttribute(attr);
TagNode link = links[0];
String href = link.getAttributeByName(attr);
```



```
Document doc = Jsoup.parse(content);
Elements links = doc.select(selector);
Element link = links.first();
String href = link.attr(attr);
```

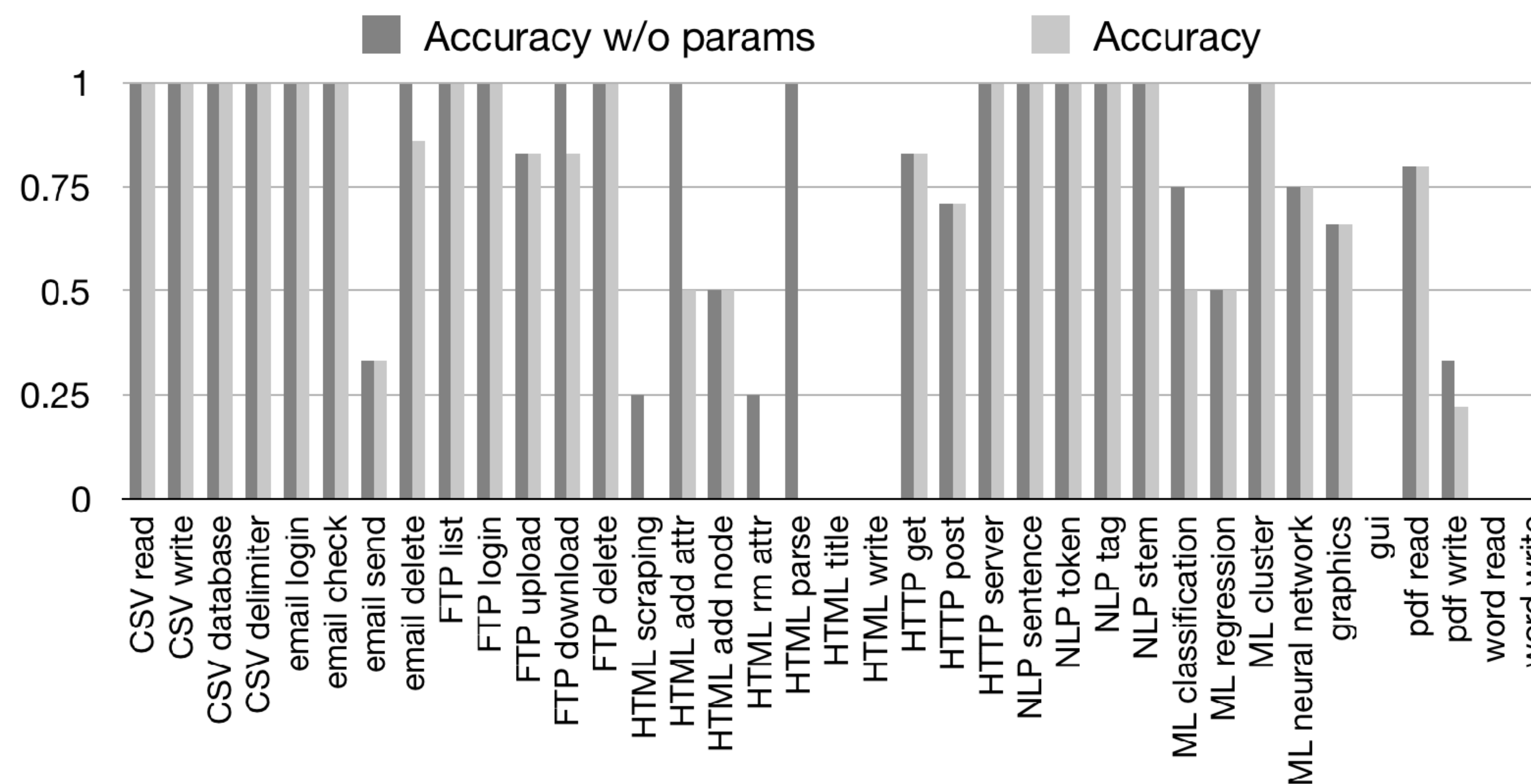
Methods

- Translate the input API calls
- Synthesize complete API call sequence



Main Results

- Refactoring accuracy on various input API call sequences
- Accuracy : percentage of correct generated API calls

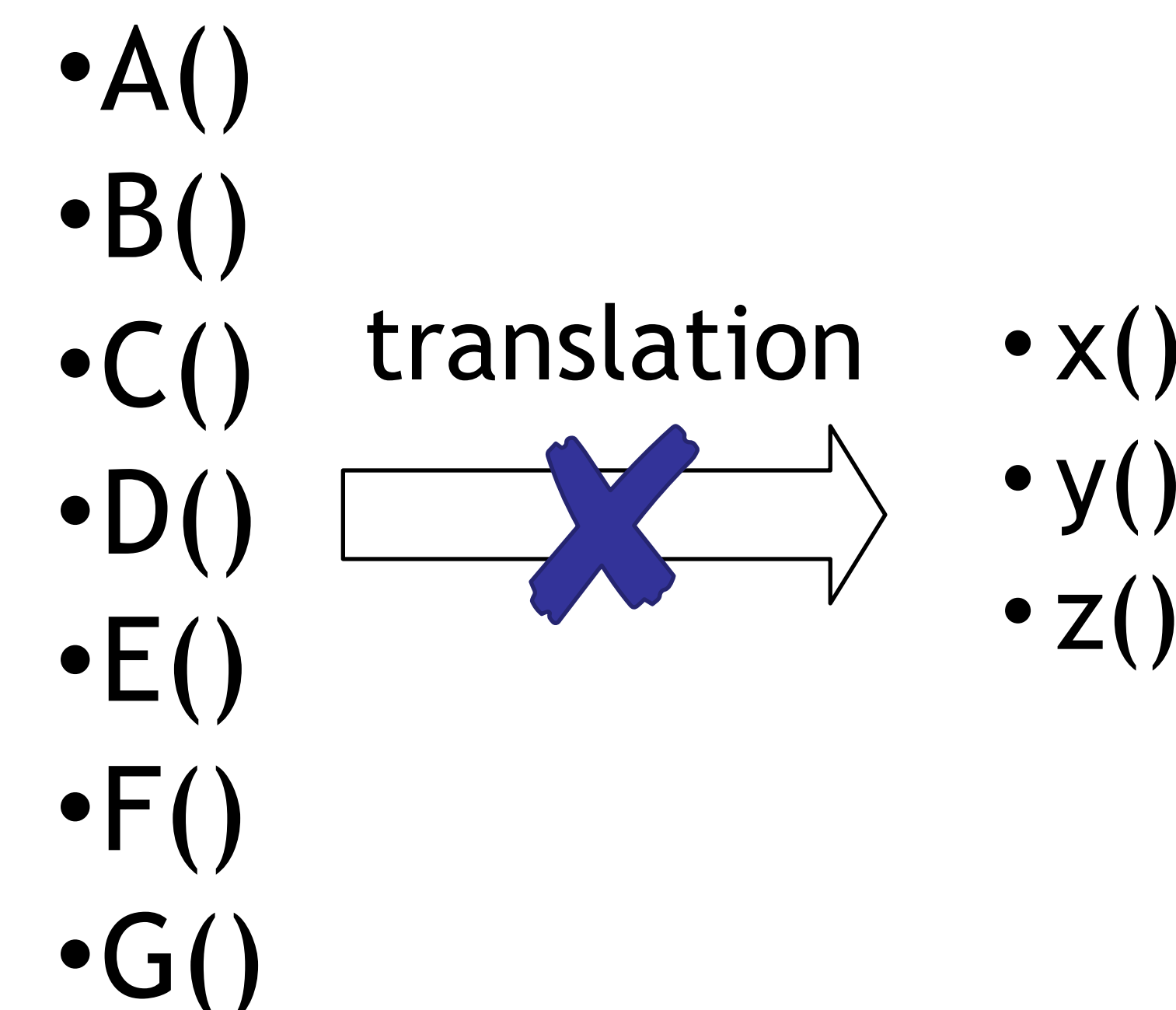


Conclusion

- Effective method that automates the process of API refactoring
- Combination of two techniques
 - API call translation
 - API call sequence synthesizer
- Does not work when
 - Terminologies are different
 - Input sequence is too long

Limitations

- Our refactoring method might not work as expected
 - Inaccurate API translation
 - HTML Writing
 - Word Reading/Writing
 - GUI
 - Long input API sequence
 - Sending Email
 - PDF Writing



Bibliography

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